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WHAT IS CLAIMED IS:

1. A light-emitting semiconductor device comprising:

an n-layer with n-type conduction of group III nitride compound semiconductor satisfying the formula $\text{Al}_{x_3}\text{Ga}_{y_3}\text{In}_{1-x_3-y_3}\text{N}$, inclusive of $x_3=0$, $y_3=0$ and $x_3=y_3=0$;

a p-layer with p-type conduction of group III nitride compound semiconductor satisfying the formula $\text{Al}_{x_1}\text{Ga}_{y_1}\text{In}_{1-x_1-y_1}\text{N}$, inclusive of $x_1=0$, $y_1=0$ and $x_1=y_1=0$;

an emission layer of group III nitride compound semiconductor satisfying the formula $\text{Al}_{x_2}\text{Ga}_{y_2}\text{In}_{1-x_2-y_2}\text{N}$, inclusive of $x_2=0$, $y_2=0$ and $x_2=y_2=0$;

a junction structure of said n-layer, said p-layer, and said emission layer being any one of a homo-junction structure, a single hetero-junction structure, and a double hetero-junction structure; and

wherein said emission layer is formed between said n-layer and said p-layer, and doped with both a donor and an acceptor impurity.

2. A light-emitting semiconductor device of claim 1, wherein said donor impurity is one of the group IV elements and said acceptor impurity is one of the group II elements.

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3. A light-emitting semiconductor device of claim 2, wherein said donor impurity is silicon (Si) and said acceptor impurity is cadmium (Cd).

4. A light-emitting semiconductor device of claim 2, wherein said donor impurity is silicon (Si) and said acceptor impurity is zinc (Zn).

5. A light-emitting semiconductor device of claim 2, wherein said donor impurity is silicon (Si) and said acceptor impurity is magnesium (Mg).

6. A light-emitting semiconductor device of claim 1, wherein said emission layer exhibits any one of n-type conduction, semi-insulative and p-type conduction characteristics depending on concentration ratio of said donor impurity and said acceptor impurity doped thereto.

7. A light-emitting semiconductor device of claim 1, wherein said donor impurity is one of the group VI elements.

8. A light-emitting semiconductor device of claim 1, wherein the composition ratio of Al, Ga and In in

said n-layer, said p-layer and said emission layer is designed to meet each of the lattice constants of said layers to a lattice constant of an n^+ -layer of high carrier concentration.

9. A light-emitting semiconductor device comprising:

an n-layer with n-type conduction of group III nitride compound semiconductor satisfying the formula $Al_{x_3}Ga_{y_3}In_{1-x_3-y_3}N$, inclusive of $x_3=0$, $y_3=0$ and $x_3=y_3=0$;

a p-layer with p-type conduction of group III nitride compound semiconductor satisfying the formula $Al_{x_1}Ga_{y_1}In_{1-x_1-y_1}N$, inclusive of $x_1=0$, $y_1=0$ and $x_1=y_1=0$;

an emission layer with p-type conduction of group III nitride compound semiconductor satisfying the formula $Al_{x_2}Ga_{y_2}In_{1-x_2-y_2}N$, inclusive of $x_2=0$, $y_2=0$ and $x_2=y_2=0$ sandwiched between said n-layer and said p-layer; and

wherein said emission layer has a narrower band gap than those of said n-layer and said p-layer, and has p-type conduction.

10. A light-emitting semiconductor device of claim 9, wherein said emission layer is doped with magnesium (Mg), a donor impurity, and an acceptor impurity.

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11. A light-emitting semiconductor device of claim 10, wherein said donor impurity is one of the group IV elements and said acceptor impurity is one of the group II elements.

12. A light-emitting semiconductor device of claim 11, wherein said donor impurity is silicon (Si) and said acceptor impurity is cadmium (Cd).

13. A light-emitting semiconductor device of claim 11, wherein said donor impurity is silicon (Si) and said acceptor impurity is zinc (Zn).

14. A light-emitting semiconductor device of claim 11, wherein said donor impurity is silicon (Si) and said acceptor impurity is magnesium (Mg).

15. A light-emitting semiconductor device of claim 11, wherein the composition ratio of Al, Ga, and In in said p-layer, said n-layer, and said emission layer is designed to meet each of the lattice constants of said layers to a lattice constant of an n⁺-layer of high carrier concentration.